Claims

1. An oligonucleotide comprising at least two hydrophobic anchoring moieties capable of being attached to a lipid membrane.

2. An oligonucleotide according to claim 1, wherein said hydrophobic anchoring moieties are located in its terminal ends.

3. An oligonucleotide according to claim 2 comprising a first strand and a second strand of nucleic acid, said two strands being hybridised to each other in a duplex section in a manner that first strand terminal end is not a part of said duplex section and free from a hydrophobic anchoring moiety.

4. An oligonucleotide according to claim 2 or 3, wherein two hydrophobic anchoring moieties are covalently attached to the adjacent terminal ends of said first and second strands.

5. An oligonucleotide according to claim 3 or 4 comprising n; n being an integer and $n > 0$; additional strands each provided with a terminal hydrophobic anchoring moiety, wherein a first additional strand is hybridized to said second strand and wherein a second additional strand is hybridized to the first additional strand and strand n is hybridized to strand n-1.

6. An oligonucleotide according to claim 2 comprising a first and a second strand said two strands being hybridized to each other in a duplex region in a manner that leaves the first strand free to hybridize with a third strand.

7. An oligonucleotide according to claim 6, wherein said first strand has hydrophobic anchoring moieties in both terminal ends.

8. An oligonucleotide according to claim 7, wherein said third strand has a terminal hydrophobic anchoring moiety so first and third strands have adjacent hydrophobic anchoring moieties.

9. An oligonucleotide according to any of claims 1 to 8, wherein the hydrophobic anchoring moiety is selected among steroids, fatty acids, hydrophobic peptides and lipids.

10. An oligonucleotide according to claim 9, wherein the hydrophobic anchoring moiety is cholesterol or a derivative thereof.

11. An oligonucleotide according to claim 3 to 10, wherein the hydrophobic anchoring moiety is spaced apart from the duplex section by a spacing group or a sufficient number of non-hybridized nucleic acid units.

12. An oligonucleotide according to any of claims 1-11 adapted and available to be linked by specific binding to a surface immobilized linker or to another lipid membrane attached linker.

13. An oligonucleotide according to any of claims 1 to 11 immobilized to a surface.

14. An oligonucleotide according to claim 2, wherein the first strand is longer than the second strand, said first and second strands have a duplex region involving the terminal end of the second strand.

15. An oligonucleotide according to claim 8, wherein the first strand has essentially double the amount of nucleic acid monomers than the second strand, said first and second strand have a cholesterol molecule attached to their free 5′ and 3′-ends, respectively.

16. An oligonucleotide according to any previous claim comprising a section of peptide nucleic acids (PNA) capable of forming PNA-peptide complexes.

17. An oligonucleotide according to claim 9, wherein the first strand is 30-mer DNA; the second strand is a 15-mer DNA having 12 complementary bases.

18. A lipid vesicle comprising an oligonucleotide according to any of claims 1 to 10 attached to its lipid membrane.

19. A lipid vesicle according to claim 17 contains electrochemically detectable reporter molecules.

20. A lipid vesicle according to claim 11 comprising biologically active compounds exhibiting biological functionality.

21. A lipid vesicle according to claim 21, wherein said biologically active compound is a membrane protein.

22. A surface immobilized structure comprising a plurality of vesicles according to claims 18 to 21, wherein said vesicles being adapted and available to be linked by specific binding to any of a surface immobilized linker, another lipid vesicle attached linker or to surface immobilized oligonucleotide according to claim 13.

23. A biosensor including a surface immobilized structure according to claim 13.

24. A method of forming a lipid membrane attached linker, wherein an oligonucleotide according to any of claims 1 to 17 having two or more hydrophobic anchoring moieties contacts a lipid membrane, thereby accomplishing a direct attachment of said oligonucleotide by said moieties at adjacent sites on the same membrane.

25. A method according to claim 24, wherein said membrane forms a lipid vesicle.

26. A method according to claim 24 or 25 wherein said membrane is a bilayer membrane.

27. A method according to claim 24, wherein said attachment is irreversible.